Users’ guide for pome fruit

Innovative softer chemistry for the control of sucking pests

Movento 240° SC insecticide is a powerful, innovative, IPM-friendly insecticide now registered for the control of mealybugs and San Jose scale in pome fruit – including nashi, quince and loquats – and the suppression of woolly apple aphids.

The first Group 23 insecticide registered in Australia, Movento has already shown the value of its unique “2-way systemicity” in other fruit and vegetable crops. Because it is distributed through the plant both upwards and downwards, Movento is able to control pests conventional insecticides don’t reach.

Mode of action
Movento is mainly effective in controlling pome fruit pests through ingestion. Movento acts as a lipid biosynthesis inhibitor (LBI) and is primarily active on the immature stages of many sucking pests. Movento should therefore be applied to the early life stages of pests for best performance.

IPM compatibility
Movento is “soft” on most beneficial species. Movento is harmless to hoverflies, and lacewings, slightly harmful to earwigs, spiders and predatory bugs, and moderately harmful to predatory mites, with no long-term population effects, when used as directed.

In summary, Movento is highly compatible with IPM production systems.

Movento in pome fruit at a glance

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<td>40 mL/100 L water + adjuvant.</td>
<td>Monitor crops following flowering and commence application at the onset of crawler emergence or when pests reach an economic threshold.</td>
<td>Mealybugs and woolly apple aphid: 14–28 days. San Jose scale: minimum 14 days.</td>
<td>No more than 3 applications per crop with a minimum of 14 days between applications.</td>
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Disclaimer
Always consult the product label for detailed information.

The information and recommendations set out in this brochure are based on tests and data believed to be reliable at the time of publication. Results may vary, as the use and application of the products is beyond our control and may be subject to climatic, geographical or biological variables, and/or developed resistance. Any product referred to in this brochure must be used strictly as directed, and in accordance with all instructions appearing on the label for that product and in other applicable reference material. So far as it is lawfully able to do so, Bayer CropScience Pty Ltd accepts no liability or responsibility for loss or damage arising from failure to follow such directions and instructions.

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The "systemicity" of insecticides refers to the uptake, transport and distribution of the active ingredient within a plant (including fruit trees). There are two systems of transport within plants; most older systemic insecticides are only mobile in the xylem, not the phloem.

**THE XYLEM CARRIES WATER AND NUTRIENTS UPWARDS FROM THE ROOTS OF A PLANT TO THE SHOOTS. THE PHLOEM TRANSPORTS THE SUCROSE PRODUCED BY PHOTOSYNTHEIS FROM THE LEAVES TO THE FRUITS.**

The xylem carries water and nutrients upwards from the roots of a plant to the shoots. The phloem transports the sucrose produced by photosynthesis from the leaves to the young shoots, leaves, buds, fruits and developing roots. Unlike the xylem, the phloem works in both directions – upwards from roots to leaf and back down from the leaf to the roots.

The innovative advantage of spirotetramat, the active ingredient of Movento, is that it is transported both in the xylem and the phloem, so it moves both upwards and downwards throughout the plant.

**GETTING THE BEST OUT OF MOVENTO**

**Coverage and plant health**

Thorough spray coverage and overall tree health are important for maximum uptake of Movento. Control may be reduced by poor spray coverage of the tree canopy and/or any form of climatic or environmental stress that reduces the uptake of Movento through the leaves.

Products such as sunblock or other protectant products and/or any form of climatic or environmental stress that reduces the uptake of Movento should be avoided until after Movento has been applied.

**Adjuvants**

- **Without spray adjuvant**
- **With spray adjuvant**

As these images show, the uptake and translocation of spirotetramat in plant tissue is dramatically improved by the addition of an adjuvant.

Adjuvants such as sunblock or other protectant products forming a physical barrier over the leaf may also reduce the uptake of Movento through the leaves. Supplements such as sunblock or other protectant products should be avoided until after Movento has been applied.

**Residues management**

Movento should not be applied more than three times on each pome fruit crop.

**Withholding periods**

Domestic market: 3 weeks.

**HOW TO USE MOVENTO**

**Spray timing**

Application to the juvenile life stages of the pest before pest numbers have built up is the key to success with Movento.

Trials have consistently shown that applying Movento during the early life stages (crawler release or nymphs) of the target pest gives the best results. Applying Movento to established pest populations dominated by mature adults is not recommended and will result in poor control.

Early spraying is also important because Movento, once within the plant, can take several days to reach peak efficacy. Applying Movento early allows for ingestion and the subsequent death of early life stages before the pest can become established.

To ensure there is sufficient foliage for product uptake, Movento should not be applied before petal fall or on pears before fruitlets reach 10 mm in diameter in pears.

Movento should be applied as two foliar sprays 2–4 weeks apart, followed by applications of further products with a different mode of action to keep the crop clean to harvest.

This back-to-back Movento spray program enhances the residual control, controlling young crawlers (scale/mealysbugs) or nymphs (aphids) before they can establish on leaves and fruit. The follow-up spray is especially important where an extended crawler release may occur as the residual control from the first application begins to run out.

**Application**

Good coverage is essential, so apply thoroughly and use the same total amount of product whether using dilute or concentrate spraying methods. For concentrate spraying, do not use at rates greater than twice the dilute spraying rate (i.e. at a concentration factor greater than 2X).

**Controlling the mealybug lifecycle**

- **Spring**
  - In spring crawlers move from bark to shoots
  - Apples touching bark are more likely to be infested
  - Some eggs are laid on the apples, but most are laid on old wood to overwinter

- **Summer**
  - In early summer most females go back to old wood to lay eggs or live young

- **Autumn**
  - Later in summer the new crawlers emerge from the bark to infest the apples and foliage

- **Winter**
  - Under the bark crawlers begin hatching from the overwintering egg sacs

**CONTROLLING LONGTAILED AND TUBER MEALYBUG**

(Pseudococcus longispinus and Pseudococcus virgatum)

Monitor crops following flowering. Begin applications at the onset of crawler emergence. To ensure there is sufficient foliage for product uptake:

- For apples, do not apply prior to petal fall.
- For pears, do not apply prior to fruitlets reaching 10 mm in diameter.

Continue to monitor crops and make a second application 14 to 28 days after the first application.

**BREAKING THE MEALYBUG LIFECYCLE**

**CONTROLLING SAN JOSE SCALE**

(Quadraspides pennisimus)

Movento is registered for control of San Jose scale at 30 mL/100 L. Monitor the crop after petal fall and begin applications at the onset of crawler emergence. Do not start spraying in pears until the fruitlets are at least 10 mm in size. Continue monitoring and make up to two further applications when new generations emerge. Do not re-apply within 14 days of a previous Movento application.

**MANAGING WOOLLY APPLE APHID**

(Eriosoma lanigerum)

Movento provides suppression of woolly apple aphid (WAA) and should be applied at the same lifecycle timings as for mealybug and scale: when colonies are building rather than established in order to target juveniles. Trials have shown that applications to established populations of WAA will not provide control of the pest.

Under high WAA pressure, Movento should not be solely relied on for adequate reduction in pest numbers. Supplementing back-to-back Movento sprays with a soil drench such as Confidor® Guard and/or later sprays with Movento supplemented with a back-to-back Movento sprays with a soil drench such as Confidor® Guard and/or later applications of a registered foliar product can help achieve extended control of WAA.
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The innovative advantage of spirotetramat, the active ingredient of Movento, is that it is transported both through the xylem and the phloem, so it moves both upwards and downwards throughout the plant.

GETTING THE BEST OUT OF MOVENTO

Coverage and plant health

Thorough spray coverage and overall tree health are important for maximum uptake of Movento. Control may be reduced by poor spray coverage of the tree canopy and/or any form of climatic or environmental stress that reduces the uptake of Movento through the leaves.

Products such as sunblock or other protectant products forming a physical barrier over the leaf may also reduce product uptake and should be avoided until after Movento has been applied.

Adjuvants

Without spray adjuvant

- <5% uptake

With spray adjuvant

- >90% uptake

As these images show, the uptake and translocation of spirotetramat in plant tissue is dramatically improved by the addition of an adjuvant.

After extensive testing in grapevines, the recommended spray adjuvants are Agridel or Hasten at 0.05% v/v (50 mL/100 L of water). Agridel was used in the majority of trials. These adjuvants ensure that Movento penetrates through the leaf cuticle and into the sap stream for the insects to ingest. Movento would be significantly less effective if it was applied without them.

The use of straight non-ionic surfactants and organo-silicon based products has produced inconsistent results, so they are not recommended in tank-mixes with Movento in pome fruit.

HOW TO USE MOVENTO

Spray timing

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